(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 18 December 2003 (18.12.2003)

PCT

(10) International Publication Number WO 2003/104556 A3

(51) International Patent Classification⁷: D21 13/18, H01M 8/02, 8/10, D04H 1/42

D21H 25/04,

(21) International Application Number:

PCT/CH2003/000366

(22) International Filing Date: 6 June 2003 (06.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 969/02

6 June 2002 (06.06.2002) CH

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

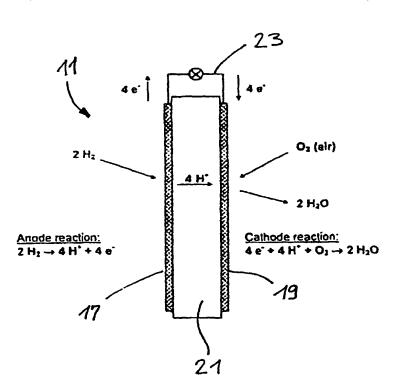
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 19 February 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS TO MANUFACTURE AN ION-PERMEABLE AND ELECTRICALLY CONDUCTING FLAT MATERIAL, THE MATERIAL OBTAINED ACCORDING TO THE PROCESS, AND FUEL CELLS



(57) Abstract: A fibrous, flat and ion-permeable material made of synthetic fibers, in particular of synthetically spun fibers such as acrylic fibers or aramid fibers, is processed into staple fibers of a specific length and then fibrillated. In a wet-laid inclined machine (paper machine), the fibrillated fibers are formed into a continuous web and then the web or portions of it are subjected to a temperature treatment to make the web electrically conducting by carbonizing/graphitizing the web through heating.

INTERNATIONAL SEARCH REPORT

PCT/CH 03/00366

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 D21H25/04 D21H13/18 D04H1/42 H01M8/02 H01M8/10 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) D21H H01M D04H IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. EP 0 386 633 A (OSAKA GAS CO LTD ; JAPAN 23,24, X 27,29 FELT IND (JP)) 12 September 1990 (1990-09-12) the whole document EP 0 834 936 A (MITSUBISHI PAPER MILLS 1 - 31Α LTD) 8 April 1998 (1998-04-08) claims 1,10,14,16,19,20,22 US 3 047 455 A (ANDERSON NEALIE T ET AL) 1 - 29Α 31 July 1962 (1962-07-31) the whole document US 2 810 646 A (WOODING WILLIAM M ET AL) 1 - 29Α 22 October 1957 (1957-10-22) the whole document Α FR 1 469 832 A (ACSA APPLIC CHIMICHE S P A) 17 February 1967 (1967-02-17) Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. document referring to an oral disclosure, use, exhibition or other means document published prior to the International filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the International search report 4 December 2003 18/12/2003 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 Songy, O

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